WHAT IS CLAIMED IS:

1. A process for said production of a semiconductor laser based on a semiconductor substrate with a laser layer arranged on said semiconductor substrate and a strip-shaped lattice structure, the process comprising the steps of:

producing a complete semiconductor laser structure in an epitaxial process;

forming a waveguide ridge by subjecting said semiconductor laser structure to a material removal process to form carrier surfaces arranged on both sides of a waveguide ridge; and

applying the lattice structure to said carrier surfaces.

2. The process according to claim 1, wherein before applying the lattice structure to said carrier surfaces an insulating layer is formed on the carrier surfaces.

3. The process according to claim 1, wherein said step of applying the lattice structure includes applying a metallic lattice structure with a lithographic process, said lithographic process being employed followed by metallization of said lithographic structure.

4. The process according to claim 3, wherein a plurality of semiconductor lasers are produced in a composite wafer in according to the steps comprising:

producing a semiconductor laser wafer by application of an epitaxial structure to a semiconductor substrate;

forming the ridge-like waveguide structure comprising waveguide ridges extending in parallel to one another on said surface of said semiconductor laser wafer;

dividing said semiconductor laser wafer into individual semiconductor laser chip units;

forming one or more lattice structures on said semiconductor laser chip units.